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10/002,952	11/15/2001	Nobuyuki Takamori	70801-56710	5464

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/002,952
Filing Date: November 15, 2001
Appellant(s): TAKAMORI ET AL.

Mark D. Russett (41,281)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/23/2006 appealing from the Office action mailed 08/23/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2000-311381	Tajima et al.	11-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A Claims 1,5,6 and 10-14 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Tajima et al. JP 2000-311381.

Tajima et al. JP 2000-311381 exemplifies optical recording media shown in figures 1,7 and 8, where the UV cured protective layers disclosed in table 5 as having thicknesses of 12 microns. The example corresponding to the embodiments of table 5 meets the limitations of the claims and use 0.5 mm polycarbonate as the substrate material [0057]. The data in the tables establishes this, in particular that the Young's modulus is **5.9 x 10^9 Pa**. Figure 10 shows the deflection (camber angle) as a function of time based upon the change from 60% humidity to 90% humidity at 25 degrees C. and the variation in the curvature is less than about 1 mRad [0062]. The optimization of the expansion properties and Young's modulus is taught throughout the reference including [0004-0006, 00012,0015,0026-0034].

The examiner notes that the linear expansion coefficients and Young's modulus are relatively unimportant by themselves. As the desire to reduce warping of the media is the intended/desired result, the applicant might find including any limitations found in the specification with respect to the warpage or tilt into the claims to distinguish over less desirable media with high warpage/tilt. (see Inuoue et al. '493).

The applicant argues that the humidity expansion coefficient is not taught. The examiner holds that the humidity expansion coefficient is an inherent property of the material and that the protective layer of the prior art cited inherently meets this limitation. The examiner is holding a position of inherency and notes that while the property is not described, the effect is well documented in the reference, specifically in figure 10 which evidences that the deflection of the medium is less than ~ 1 mrad for a change in RH of 30% (60% to 90% RH), which is an equivalent or a better result than achieved by the applicant in the instant specification at [0090]. The diffusion rate of water through the layer is disclosed in tables 4 and 5. ***The examiner still holds that the actual properties of the materials is a question of fact, which can be resolved by a declaration by one of the applicants as there are inventors in common.*** While the expansion coefficient as a function of humidity is not disclosed, the effects certainly are and the ~1 mrad is comparable to the 0.7 mrad of example 1 and the 4.0 mrad of example 2 in the instant specification. The examiner is definitely of the opinion that if the medium does not warp more than the values of the applicants own specification under the effects of humidity and the other layers are the appropriate thicknesses and materials, then the claimed coefficient of expansion is clearly inherent. The "consisting essentially of" language is not particularly exclusionary in this case as the same layer (30) on the backside of the substrate is disclosed in figure 1 and sections [0006,0049] of the specification. Therefore this partially closed language does not exclude this layer. **The examiner also notes the fast equilibration in figure 10 of Tajima et al. JP 2000-311381 (~0.5 to 1.0 hours), which is similar to that of figures 5 and 6 of the instant application, which also implies a similarity in the properties of the materials characterizing their response to humidity. As these properties are described in the instant as balancing a**

thin polycarbonate substrate, their optimized thickness and properties would not be that required to offset a thicker substrate.

(10) Response to Argument

The applicant argues that the Tajima et al. reference is directed to warpage caused by temperature changes (brief at page 11). The examiner agrees this is shown in figure 11 of Tajima et al., but the applicant fails to appreciate the teachings of figure 10, cited in the rejection, which measures the camber angle (warpage) of the medium when the humidity is changed from 60% to 90% humidity and the temperature is held constant at 25 degrees C [0062]. The applicant discusses example 3 of Tajima et al., but this is not the examples being relied upon as the Young Modulus is 3.6×10^9, which is below the requirements. (brief at page 12)

The examiner agrees that the expansion coefficient under the effect of humidity is not described (brief at page 12), but holds that the materials used inherently meet the claims requirements for this based upon the low deflection observed. As the thickness of the resin layer (12 microns) is much less than that of the substrate (0.5 mm, 500 microns), the coefficient of expansion due to humidity for the protective layer would have to be larger than that of the substrate to offset the force generated by the expansion of the substrate due to humidity. The applicant argues that the four layer structure of Tajima et al., the substrate protective coating being the fourth layer, is like that of the conventional media described with respect to the prior art (brief at page 12). The examiner notes that figure 1 and 3 and the instant specification describe the presence of substrate protection film 30 (prepub at [0046-0048], specification as filed at page 12/line 10 through page

13/line 12) and so the examiner does not read the current claims to exclude this layer on the backside of the substrate.

The applicant asserts that inherency may not be established by probabilities or possibilities (brief at page 13). The examiner agrees noting that the 0.5 mm polycarbonate substrate, the AlN dielectric layer (see table 1, second line, [0036] and table 5, third line) evidencing the same properties and therefore the same materials used. While the thrust of the Tajima et al. reference describes the temperature effects, the resistance of the medium to deformation/warpage by the effects humidity is clearly present in figure 10 and [0062]. As the deleterious effects are warpage, the low warpage (~ 1.0 mrad) exhibited by medium of example 4 evidences the benefit ascribed to the use of the resin having a particular coefficient of expansion under the effects of humidity and indeed is comparable with the –0.7 and 4.0 mrad illustrated in figures 5 and 6 of the instant application. The low warpage speaks directly to the language of claim 12, which requires the bending moments generated by the protective layer and the substrate to be equalized to maintain a neutral (flat and unwarped) plane. Therefore one skilled in the art can be confident that the result effective property has been optimized and is within the preferred range recited in the claims. The applicant has not provided a logical framework which would allow the results shown in figure 10 for the medium disclosed, where the relative humidity is changed by 30%, but the warpage is only ~ 1mrad, to be achieved with a coefficient of expansion due to humidity outside the values recited in the claims. Essentially this is a result-based optimization to reach the desired result and the similarity between the media of the prior art and those disclosed, support the examiner's position of inherency with respect to the coefficient of expansion under the influence of humidity.

The comments relating to the comparative examples of the instant specification (brief at pages 14 and 15) were relevant when the claims embraced values of 1.7×10^{-4} and the discussion of urethane, epoxy, polyester and polyether acrylates applied when other rejection were present. These no longer have a bearing on the instant claims.

The applicant argues that the examiner has not provided any extrinsic evidence that UV resin used in example 4 of Tajima et al. possesses the requisite properties. (brief at page 15 and 16). The examiner notes that this is impossible for the examiner as the composition is not described in the reference. The examiner has noted in the past that applicants Tajima and Takamori are also listed as applicants on the Tajima et al. reference and that the assignees are the same and has held ***that the actual properties of the materials is a question of fact, which can be resolved by a declaration by one of the applicants as there are inventors in common and they would know what the composition used was.*** The applicant has declined to provide such a declaration, but has argued that a declaration directed at Tachibana et al. addresses this. This applicant has not shown that the same resins are used by the references and there are differences in the structure of the reference compared against and the Tajima et al. reference, particularly the substrate thickness. Further the applicant has not demonstrated are argued why the comparison provided is equal to or preferable to one with the prior art of Tajima et al..

With respect to the limitations of claim 12 (brief at page 16), the applicant's specification in figure 11 shows the expansion coefficient under humidity for polycarbonate to be 7.0×10^{-6} and so is equivalent to the limitation that the expansion coefficient be greater than that of the substrate appearing in claims 1 and 10 for the embodiments where the substrate is polycarbonate

as recited in claim 5. The Young's modulus value is given in table 5 of Tajima et al. as 5.9 x 10^9.

With respect to the argument that the consisting essentially of language of claim 14 would exclude the medium of example 4 of Tajima et al. which has a protective layer on the rear face of the substrate (brief at page 17), this is without merit based upon the same layer shown in figures 1 and 3 and specifically is discussed in the instant specification as substrate protection film 30 (prepub at [0046-0048], specification as filed at page 12/line 10 through page 13/line 12). Further, the presence of that layer does not materially change the fact that disclosed example of Tajima et al. is an optical recording medium and functions as such irrespective of the presence of that substrate protective layer.

The applicant argues that the declaration relating to Tachibana et al. should obviate the rejection (brief at pages 17-18). . This applicant has not shown that the same resins are used by the references and there are differences in the structure of the reference compared against and the Tajima et al. reference, particularly the substrate thickness. Further the applicant has not demonstrated are argued why the comparison provided is equal to or preferable to one with the prior art of Tajima et al. which actually realizes the advantage ascribed to this optimization of the coefficient of expansion due to humidity by evidencing a warpage/deflection of only 1 mrad, which is similar to or better than the 4 or 0.7 mrad disclosed by the applicant in figures 5 and 6. The examiner has noted in the past that applicants Tajima and Takamori are also listed as applicants on the Tajima et al. reference and that the assignees are the same and has held ***that the actual properties of the materials is a question of fact, which can be resolved by a declaration by one of the applicants as there are inventors in common and they would know***

what the composition used was. The applicant has declined to provide such a declaration, but has argued that a declaration directed at Tachibana et al. addresses this.

With respect to the limitations of claim 11 (brief at page 18), the applicant's specification in figure 11 shows the expansion coefficient under humidity for polycarbonate to be 7.0×10^{-6} and so is equivalent to the limitation that the expansion coefficient be greater than that of the substrate appearing in claims 1 and 10 for the embodiments where the substrate is polycarbonate as recited in claim 5. The Young's modulus value is given in table 5 of Tajima et al. as 5.9×10^{9}.

With respect to claim 13, the applicant argues that the reference does not teach or suggest the claimed invention. As discussed above, the thickness of the resin layer (12 microns) is much less than that of the substrate (0.5 mm, 500 microns), the coefficient of expansion due to humidity for the protective layer would have to be larger than that of the substrate to offset the force generated by the expansion of the substrate due to humidity. As the deleterious effects are warpage, the low warpage (~ 1.0 mrad) exhibited by medium of example 4 evidences the benefit ascribed to the use of the resin having a particular coefficient of expansion under the effects of humidity and indeed is similar to or below the 0.7 and 4.0 mrad illustrated in figures 5 and 6 of the instant application. The low warpage speaks directly to the language appearing in claim 12, which requires the bending moments generated by the protective layer and the substrate to be equalized to maintain a neutral (flat and unwarped) plane. Therefore one skilled in the art can be confident that the result-effective property has been optimized and is within the preferred range recited in the claims. Essentially this is a result-based optimization to reach the desired result and the similarity between the media of the prior art and those disclosed, support the examiner's

position of inherency with respect to the coefficient of expansion under the influence of humidity.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Martin J. Angebranndt
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Art Unit 1756

Conferees:

Mark F. Huff
Supervisory Patent Examiner
Art Unit 1756

JENNIFER MICHENER
QUALITY ASSURANCE SPECIALIST